

Application Number 10/723,101
Amendment dated July 19, 2004
Reply to Office action of April 22, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for varying the impedance of a motor having N phases, where N is greater than three, comprising:

a) synthesizing a plurality of phases of alternating current output using an inverter system, and connecting each phase electrically to at least one inverter terminal;

[[a]]b) connecting, electrically, each phase of said motor to:

(i) a first terminal of said inverter;

(ii) a second terminal of said inverter S skipped terminals distant from said first terminal in order of electrical phase angle, where S is the skip number and represents the number of skipped terminals;

so that a phase angle difference between the two inverter terminals to which each motor phase is connected is identical for each motor phase;

c) varying the phase angle difference between said first terminal and said second terminal;

d) receiving a signal indicating a requirement to vary the impedance of the motor.

and wherein said step of varying the phase angle difference comprises varying the phase angle difference substantially in accordance with said requirement to vary the impedance of the motor.

Claim 2 (cancelled).

Claim 3 (original): The method of claim 1 wherein said step of varying the phase angle difference comprises: decreasing the phase angle difference between said first terminal and said second terminal to increase the impedance of the motor.

Claim 4 (original): The method of claim 1 wherein said step of varying the phase angle difference comprises: increasing the phase angle difference between said first terminal and said second terminal to decrease the impedance of the motor.

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Claim 5 (original): The method of claim 1 wherein N is an odd number, and wherein said step of varying the phase angle difference between said first terminal and said second terminal comprises switching a drive waveform of said inverter from a fundamental frequency output to a harmonic thereof.

Claim 6 (original): The method of claim 1 wherein N is an odd number, and wherein said step of varying the phase angle difference between said first terminal and said second terminal comprises superimposing upon a primary drive waveform of said inverter, one or more harmonics thereof, to a required degree of superimposition.

Claim 7 (currently amended): The method of claim 1 wherein N is a multiple of 3, and wherein the skip number is $N/3$, and wherein said step of varying the phase angle difference comprises changing from a primary drive waveform to a third harmonic drive waveform ~~multiplying each of the phase angles by 3~~ to decrease the impedance of the motor.

Claim 8 (currently amended): The method of claim 1 wherein N is a multiple of 3, and wherein the skip number is $N/3$, and wherein said step of varying the phase angle difference comprises changing from a third harmonic drive waveform to a primary drive waveform ~~multiplying each of the phase angles by 3~~ to decrease the impedance of the motor.

Claim 9 (currently amended): The method of claim 1 wherein N is not a multiple of 3, and wherein the skip number is $(N/3)-1$ rounded to the nearest integer, and wherein said step of varying the phase angle difference comprises changing from a primary drive waveform to a third harmonic drive waveform ~~multiplying each of the phase angles by 3~~ to decrease the impedance of the motor.

Claim 10 (currently amended): The method of claim 1 wherein N is not a multiple of 3, and wherein the skip number is $(N/3)-1$ rounded to the nearest integer, and wherein said step of varying the phase angle difference comprises changing from a third harmonic drive waveform to a primary drive waveform ~~multiplying each of the phase angles by 3~~ to decrease the impedance of the motor.

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Claim 11 (original): The method of claim 1 wherein the step of varying the phase angle difference comprises the step of providing increasing proportions of one or more odd order harmonics.

Claim 12 (original): The method of claim 1 wherein a phase angle difference between said first terminal and said second terminal is approximately 120 degrees, and wherein said step varying the phase angle difference comprises adding a third harmonic component to a primary drive waveform of the inverter.

Claim 13 (original): The method of claim 12 wherein said step of adding a third harmonic component is done gradually.

Claim 14 (cancelled).